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of these organs. The term "scale" is used to designate the flat imbricate bracts in inflorescences of various families, e. g., Cyperaceæ, Xyrideæ, Compositæ, etc., also the scale-like leaves of underground rhizomes in general, various nectaries, the lodiculi of grasses, etc.: but the carinate glumes and the bicarinate palet of the grasses have so far not been called scales, since their shape as a rule is too different, and the indiscriminate use of this term could lead only to confusion.

It would be highly desirable if the *Torrey Bulletin* would compel its contributors to conform to the well-known terminology of scientific botany. If not, the terminology of American botany will soon become as chaotic as its nomenclature.—THEO. HOLM, *Washington, D. C.*

NOTES AND NEWS.

DR. H. BAILLON died suddenly in Paris on the 18th of July in his 68th year.

THE LINNEAN SOCIETY'S gold medal has this year been awarded to Prof. Dr. Ferdinand Cohn of Breslau.

DR. J. VESQUE, the eminent French botanist, died at Vincennes near Paris on the 25th of July in his 47th year.

MR. JOHN DONNELL SMITH intends leaving Baltimore early in January for a visit to Nicaragua in order to continue his researches on the Central American flora.

IN HIS series of papers, in *Journal de Botanique*, on new plants of western China, M. A. Frauchet has just described twenty-one new species of *Rhododendron*.

KALMIA CUNEATA, lost after Michaux's original discovery, rediscovered by Mr. W. W. Ashe, of the Geological Survey of North Carolina, is fully described in *Garden and Forest* (Oct. 30).

DR. S. NAWASCHIN announces that *Juglans cinerea* affords a new instance of chalazal fertilization and must therefore, with Casuarineæ and Betulaceæ, be ranked among the Chalazogamæ.—Bot. Cent. 53: 353. 25 S. 1895.

DR. FELIX HOPPE-SEYLER, professor of physiological chemistry in the University of Strassburg, died on August 11th, at the age of 70 years. He did much to advance the knowledge of vegetable physiology upon the chemical side.

THE DIVISION OF FORESTRY has reprinted in pamphlet form, from the last Yearbook of the Department, Mr. Fernow's paper entitled "Forestry for farmers." It will be of great service to all those interested in the proper handling of forests.

THE SPECIAL APPARATUS for bacteriological sampling of well waters described by Prof. H. L. Bolley in a paper before the Botanical Club of the A. A. A. S., in August last, is illustrated, and the paper given in full in the *Amer. Micros. Journal* for October.

MR. N. M. GLATFELTER discusses *Salix Wardi* Bebb in *Science* (Nov. 1). He has had extensive field experience with it and gives additional information as to its relationships and range. A careful tabulated comparison with *S. nigra* and *S. amygdaloides* sets out the species strongly.

THE SIXTH, seventh and eighth issues of Lloyd's "Photogravures of American Fungi" comprise *Coprinus comatus*, showing young and old plants; *Crucibulum vulgare*, growing on a piece of rotten straw mat; and *Urnula Craterium* on fallen limb. The high quality of the former issues is maintained.

IN CONTINUING his studies of the African *Asclepiadaceæ*, appearing in the *Journal of Botany*, Mr. R. Schlechter has described (Nov.) two more new genera, *Symphytonema* and *Glossostelma*, both illustrated. He also describes seven new species, and follows Baillon in merging *Gomphocarpus* with *Asclepias*.

WEED BULLETINS have been issued by the Experiment Stations of Kansas (no. 52), giving a list and distribution over the state by counties; of Ohio (no. 59) giving methods for destruction of weeds along roadsides; and of Iowa (no. 28 in part) giving an account of prickly lettuce (*Lactuca scariola*) and buffalo-bur (*Solanum rostratum*).

THE CONTRIBUTIONS to the Queensland (Australian) flora, by F. M. Bailey, the colonial botanist, has now reached the eleventh number. The last issue (dated July, 1895), contains descriptions of the freshwater algæ, about ninety species, and of the marine algæ, about twenty species, with very full notes, and seventeen plates of illustrations.

THE BOTANIC GARDEN at the Agricultural College of Michigan is pleasantly described by Professor Beal in *Garden and Forest* (8: 303 and 322). The garden covers three acres, and, although most of the work is done by one man, yet it contains many interesting features, and is one of the few notable botanic gardens of the United States.

THE SUGGESTION has been made that the University of Pennsylvania, in connection with the museum buildings which are contemplated, lay out an ethno-botanic garden which shall serve for the instruction of the public as to aboriginal American plants, and shall possess, also, scientific value by reason of its rarity.—*Phila. Evening Telegraph*.

PROFESSOR H. HELLRIEGEL, director of the Agricultural Experiment Station, died at Bernberg, Germany, on Sept. 4th, at the age of 64 years. His investigations upon the fixation of nitrogen by Leguminosæ, and allied subjects, are of the highest value. Probably his best known work is "Untersuchungen über die Stickstoffnahrung der Gramineen und Leguminosen," published in connection with Dr. H. Wilfarth in 1888.

IN THE *Annuario del R. Istituto Botanico di Roma*, which is edited by Professor Pirota, the sixth volume opens with the following papers: The formation of the starch grain, by C. Acqua; The germination and certain structures of *Keteleeria Fortunei* (a coniferous plant), by Pirota; Some plants new to the Roman flora, E. Chiovenda; Contribu-

tions to the flora of eastern Africa, by C. Avetta, a list of 202 species, several of which are new.

IN *Flora* (80: 303) Herr H. Glück combats Bower's theory of the sporophyte being derived by the sterilization of sporogenous tissue. The point taken up is the foliage leaf of pteridophytes, which, Glück maintains, has nothing whatever in common with the sporogonium of mosses.

UNDER THE TITLE "Education and research in agriculture in the United States," the U. S. Department of Agriculture has published a pamphlet of thirty-six pages, prepared by Mr. A. C. True, giving a clear historical account of the beginnings, advancement and present status of the higher intellectual forms of agricultural knowledge.

DR. CHAPMAN'S HERBARIUM of southern plants, upon which is based his *Flora of the Southern States*, has been purchased by Mr. George W. Vanderbilt, and will serve as a nucleus of the scientific collections which he is establishing on his estate at Biltmore, in North Carolina, in connection with an arboretum and systematically managed forest. —*Garden and Forest*.

M. VUILLEMIN has described some very curious ovules of *Begonia erecta*. They "are transformed into organs, the upper part of which has the color and structure of petals, the lower part the essential structure of a carpel" (*Jour. Roy. Micr. Soc.*). He seems to think that such a monstrosity shows that there is no essential difference between an axial and an appendicular organ.

A EUROPEAN BOTANIST, whose plant preparations are known everywhere, is upon the point of losing his eyesight, this misfortune rendering him absolutely helpless. European journals have been interesting themselves in his case, and the BOTANICAL GAZETTE is glad to present this notice to its readers and to act as a channel of communication for American botanists who desire to help in this case.

THE ENERGY of the living protoplasm is treated in a series of most interesting and comprehensive articles by Dr. Oscar Loew, professor of agricultural chemistry in the Imperial University of Japan, which are now appearing in the *Bulletin* of the College of Agriculture. They are written in English. The same publication contains many other articles upon chemico-physiological subjects, for the most part the result of original investigations.

GRAPE DISEASES of the Pacific Coast are treated by Newton B. Pierce in Farmer's Bulletin no. 30 from the U. S. Department of Agriculture (pp. 8, figs. 3). The diseases described are "California vine disease," known since 1884, devastated 30,000 acres of vineyards and caused a loss of \$20,000,000, the powdery mildew, known since 1860 and coulure. The last causes the flowers and fruit to fall from the bunches, and is due to a variety of causes.

IN *Bulletin de l'Herbier Boissier* (Oct.), J. Freyn discusses a group of oriental Hieraciaceae; Nicolas Alboff gives the results of an extended study of the alpine flora of the limestones of the western Transcau-

casus, a peculiar and uniform region fully deserving careful biological observation; R. Chodat describes twelve new species of South American Polygalaceæ, two of which form a new subgenus (*Monninopsis*) of *Monnina*; and Olga Tchouproff discusses the anatomy of *Acanthaceæ*.

THE BULLETIN of the botanical department of the Public Gardens of Jamaica, published at Kingston, contains much valuable information to tropical cultivators and others interested in tropical vegetation. The number for September discusses the essential oils of orange, cultivation of cocoa and cocoa-nut, and other economic topics. It also includes a continuation of the synoptical list of Jamaica ferns, four species of *Aspidium* being treated.

A BRONZE BUST of Robert Brown has been placed as a memorial "in a niche in front of the house in which he was born," at Montrose. The bust is the gift of Miss Paton, a kinswoman of Robert Brown. The reputation of this botanist was almost unique, the foundation for it being laid in his four years of exploration in Australia, and the wealth of strange types that fell to his lot to study. Several botanists made addresses at the unveiling, and all testified "to the great work of the greatest British botanist."—*Gardener's Chronicle* (Oct. 26).

BULLETINS HAVE BEEN ISSUED from the Experiment Stations upon the following subjects: Poisoning from cowbane, by L. H. Pammel (Iowa no. 29 in part), an excellent account of the effects upon man and the domestic animals of eating the fleshy roots of *Cicuta maculata*; Crimson clover and other topics, by A. A. Crozier (Mich. no. 125), largely treated from the cultivator's standpoint; Native trees and shrubs, by Thos. A. Williams (S. D. no. 43), enumerates 117 ligneous plants and gives a brief description and the distribution over the state.

DR. J. W. HARSHBERGER has in preparation an account of the botanists of Philadelphia and their work, to show that American botany owes much to Philadelphians for its full development. The book will be an impartial discussion of the work of Philadelphia botanists. It will consist of an historical introduction, describing the rise and progress of botany in and near Philadelphia, to be followed by biographical sketches of those botanists who have prominently molded botanical thought as collectors or investigators. Portraits of all botanists included will appear. Any who can contribute any information about Philadelphia botanists are requested to communicate with the author.

BY INCREASING THE AMOUNT of nourishment Kenjiro Fujii (*Tokyo Bot. Mag.* 9: 271-275) has been able to produce female and hermaphrodite¹ flowers in *Pinus densiflora* which would otherwise have been male flowers. The method is to cut away the end of the shoot, or to remove all side shoots, or both, and thus force most of the store of nourishment into the growth of the flowers. He is led to believe that the sex of the flower is undetermined up to a certain stage of growth, and that it is in part determined by the amount of nourishment. The article is printed in English.

¹We use the sex terms as in the article, though it must be remembered that they are not really applicable.

IN THE *Journal of Botany*, for October, Mr. A. B. Rendle continues his description of Elliot's tropical African Orchids; Mr. R. Schlechter begins an enumeration of the Asclepiadaceæ of the same collector, describing a new genus (*Pleurostelma*); and Mr. D. Prain continues his account of the genus *Argemone*.

THE LEMMON HERBARIUM has been removed to a commodious building belonging to Mr. J. G. Lemmon in North Temescal, a beautiful suburb of Oakland, California, on the electric line between that city and Berkeley. Mr. Lemmon's twenty years of familiarity with Pacific coast plants, his large collection, and the library facilities at Oakland, Berkeley, and San Francisco ought to make possible some valuable monographs of western spermatophytes.

IN THE ANNUAL REPORT of the Rhode Island Experiment Station for 1894, L. F. Kinney discusses the fungous parasites of the apple and pear (pp. 183-198), with nineteen well printed illustrations. In the report of the New Jersey Experiment Station for the same year, B. D. Halsted writes upon a variety of subjects (pp. 273-419). Fungicides were tried upon cabbages, tomatoes, potatoes and beans. A large part of the space is devoted to injurious fungi of cultivated plants. Weeds receive some attention, and the poisonous plants of New Jersey are reported upon. Several articles are reprinted from journals. There is abundant illustration, but the cuts are very indifferently printed. Like the former reports of this indefatigable observer and writer, this one contains a large amount of important matter from both the scientific and economic standpoints.

POISONING OF CATTLE by eating corn stalks, which contained an excessive amount of nitrate of potash, has been reported from Kansas (*Bull. Kans. Exper. Sta. no. 49*). The plants had taken up so much of this substance from the soil, that in the partly dry stalks examined, "beneath the leaf sheath which surrounds the stalk just above the joints the nitrate had crystallized in fine white crystals which resembled a white mold, but was easily recognized by tasting with the tongue. Around and in the cut ends of the stalks were solid masses of almost pure potassium nitrate. If a stalk was cut in two and tapped lightly upon a table, the crystals of potassium nitrate would be jarred loose and fall as a fine powder. Upon splitting a stalk, the crystals in the pith could easily be seen with the unaided eye. On lighting a bit of stalk, it would deflagrate, burning rapidly like the fuse of a fire cracker. A chemical examination gave 18.8 per cent. of the dry weight of the stalk as nitrate of potash." This corn was raised on about one-eighth of an acre, which had for some time previously been used as a hog pasture. The corn had not matured owing to dry weather.

PROFESSOR W. C. WILLIAMSON died in London on June 23d, at the age of 78 years. He is best known by his series of important memoirs upon paleobotanical subjects, published mostly in the Proceedings of the Royal Society. From 1851 to 1892 he was professor of natural history and geology in Owens College, Manchester. At the latter date he laid aside his collegiate duties and removed to London to devote himself exclusively to his special field of study. Professor

Williamson had a sympathetic and attractive personality, which endeared him to all who had the privilege of his acquaintance. It was while his guests, that the picture, so well known in this country as the Manchester group of botanists, was taken. Beside Professor Williamson, who is in the center of the picture, sits Dr. Asa Gray, and no two men in the group looked more alike, or had more endearing qualities of mind and heart. His home in Manchester looked out at the rear upon an enclosure in which were grown in great thriftiness quite a large number of flowering plants, both for beauty and for botanical interest. A small greenhouse was fairly packed with orchids and other plants. Although a good gardener was employed, the direction of the work and part of the actual labor was carried on by Professor Williamson, who gave much of his leisure time to its care, and obtained from it no small degree of enjoyment.

A notice of his life, and of his contributions to science, written by Prof. L. F. Ward, has been published in *Science* for August 9th.

WHILE MANY plants are known to owe their dissemination to animals, especially birds and insects, only a few have so far been observed to become distributed by snails and toads. Voglino has lately published a very interesting article¹ upon this subject, and he demonstrates the fact that certain fungi (*Agaricineæ*) become distributed by snails and toads. It seems even, according to his observations, as if there is a connection between the occurrence of such fungi in places where these animals abound. It was, at least, the case in some pine woods in Carara and Piedmont in Italy. An examination of the stomach-contents of the snails showed the presence of spores of various species of *Tricholoma*, *Lactarius*, *Russula*, *Amanita* and others. The spores were observed to have begun their germination while still inclosed in the animal, and a culture of the excrements of various snails produced a large number of germinating spores of these fungi. The same was also observed by examining the stomach-contents of toads, in which, especially, spores of *Russula* and *Lactarius* were abundant. The author supposes that the spores of these fungi obtain the most favorable conditions for their germination by passing through the digestive canal of a snail or a toad, thus their dissemination seems closely connected with the presence of these animals.—T. H.

¹Voglino, P. *Ricerche intorno all'azione delle lumache e dei rospi sviluppo di alcuni Agaricini.* Nuovo Giornale bot. Ital. Nuova serie. 2: 181-185. Ap. 1895.